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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MITSUO YAMADA, HIROSHI KUMAGAI,
KATSUMI, MOROHOSHI and YUICHI FUJINUMA

Appeal No. 2009-013419
Application No. 10/617,731
Technology Center 1700

Oral Hearing Held: March 10, 2010

Before JEFFREY T. SMITH, LINDA M. GAUDETTE,
and JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE APPELLANT:

HOWARD N. SHIPLEY, ESQUIRE
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1 THE CLERK: Good morning. Calendar Number 26, Appeal No. 2009-
2 013419, Mr. Shipley.

3 JUDGE SMITH: Welcome, Mr. Shipley.

4 Before you begin, could you please introduce your guest, and after which
5 time you have 20 minutes to present your argument.

6 MR. SHIPLEY: Thank you. My name is Howard Shipley from the law firm
7 of Foley & Lardner. I have with me this morning Mr. Shunichi Nishiwaki
8 from Nissan Motor Company. He's representing the party at interest.

9 May it please the Court, I'd like to just take a moment to explain the
10 invention and the application and discuss the prior art references.

11 First of all, the application is directed to a resinous tube, which is typically
12 used for carrying fuel in an automobile. The tube is comprised of two
13 layers, a first-resin layer and a second-resin layer, both of which can be
14 formed of any number of materials; but for simplicity's sake, I'll use the
15 reference to polybutylene naphthalate, which the acronym is PBN.

16 Both layers are formed of similar material, and that allows the materials to
17 be extruded together and have improved characteristics for delamination and
18 miscibility and peel resistance. Basically, the two layers come together, and
19 they don't require an adhesive layer in between.

20 So you'll see in the claim there's a reference to the second layer being in
21 direct contact serving as a supporting layer for the first cylindrical resin
22 layer. That's a major point of difference between the invention and the prior
23 art. The other point that's in the claims, which the invention includes, is the
24 use of a copolymer -- a block copolymer in the supporting layer.

1 You have the first layer, which the main purpose is to inhibit fuel
2 permeation through the tube, and the second layer is the supporting layer for
3 that. In the supporting layer, there is use of a block copolymer, which
4 provides flexibility to the material.

5 Typically, PBN material is not flexible, as discussed in the prior art; and the
6 addition of the block copolymer gives flexibility, which is important to have
7 these improved characteristics of peel resistance and delamination.

8 So those are the two features I'm going to discuss further, after we go
9 through discussing the prior art. The fact that there's no adhesive layer and
10 the first and second layers are in direct contact, and the use of the copolymer
11 in the second layer.

12 There's two main prior art references used in combination to reject Claim 1.
13 The first reference is the Smith patent, 6,591,871.
14 The Smith patent discloses the use of the two PBN layers to construct a safe
15 resinous tube for carrying fuel, however, there is no disclosure of the use of
16 a block copolymer in the tube.
17 Also, the Smith patent discloses the idea of using a tie layer or an adhesive
18 layer to connect the two layers together in order to prevent separation.
19 The use of the copolymer, as I said, is not disclosed, which makes the tube
20 less flexible. One of the ways that that's overcome by the Smith reference --
21 it talks about having a corrugated structure.
22 Specifically, in Column 2, lines 48-54, it talks about how polybutylene
23 terephthalate is a relatively stiff material which is considered adequate.
24 However, with more flexibility required, the tube can have a corrugated

1 structure. So there is no use of the block copolymer to provide more
2 flexibility.

3 The Examiner has relied upon a secondary reference, which is Ito,
4 6,576,312. So there's two Ito patents in the record. This is Ito 312.
5 Ito 312 discloses the use of PBN with a block copolymer. It teaches that the
6 use of the block copolymer to provide certain improved fuel permeation
7 characteristics. However, in the structure that's disclosed in the Ito 312
8 reference, there's still an intermediate adhesive layer.

9 On the cover page of the patent, there's three layers disclosed: 2, 6 and 4,
10 the intermediate layer being an adhesive layer. So it doesn't accomplish
11 what the claimed invention accomplishes, which is the elimination of the
12 adhesive layer.

13 It also doesn't use the block copolymer to provide improved flexibility for
14 the tube. The Figure 3 of the Ito 312 patent, which shows a corrugated
15 structure, which is used to allow more flexible bending of the tube.

16 The Examiner cites Ito 312 as a motivation for combining the references, or
17 to use the block copolymer in the Smith patent, so the Examiner is
18 suggesting it would have been obvious to modify the Smith patent to include
19 the block copolymer of the Ito patent in order to provide improved
20 characteristics of resistance to fuel permeation, hydrolysis, and detergents.

21 Our position on the combination is that one of ordinary skill in the art would
22 not have even bothered to turn to the Ito reference to make any
23 modifications.

24 The Smith patent was sufficient in providing resistance to fuel permeation.
25 There was no identified problem in the Smith patent with lack of adhesion or

1 peel resistance, and the only motivation for combining the reference could
2 have been found in our own application, because that's where the disclosure
3 that you get these improved characteristics and elimination of the adhesion
4 layer -- the requirement for an intermediate layer.

5 Neither of the two prior art references disclosed that you can, basically,
6 eliminate the supporting structure, the adhesion layer and the supporting
7 structure. So back to the claimed invention there's two layers.

8 The supporting structure, PBN material, or other materials mentioned in the
9 claims, the fuel permeation layer to prevent fuel passing through, that's the
10 same material. Those are in direct contact together.

11 The supporting layer having the block copolymer, which provides for
12 improved flexibility, improved connection between the materials, and so you
13 have the improved peel resistance.

14 The product doesn't disclose that specific structure because the prior art, in
15 all instances, requires an adhesive layer. So we basically --

16 JUDGE SMITH: Excuse me, doesn't the prior art state that the adhesive
17 layer is optional?

18 MR. SHIPLEY: In the Smith patent the prior art -- it doesn't use the word
19 optional.

20 JUDGE SMITH: May?

21 MR. SHIPLEY: Yes.

22 JUDGE SMITH: May be desirable, I believe is the language.

23 MR. SHIPLEY: Yes, in the Smith patent it says the adhesive layer may be
24 desirable.

25 JUDGE SMITH: And wouldn't a person of ordinary skill in the art realize

1 that when you're extruding two similarly constructed polymers together that
2 there is a natural adhesion there?

3 MR. SHIPLEY: I can only say that one of ordinary skill is going to look at
4 the reference and see that in the cases which -- the references that are in the
5 record and what's known is that --

6 JUDGE SMITH: That's what I'm referring to. If you're extruding two
7 polymers together made of similar materials, you're going to expect some
8 adhesion because of the likeness of the materials being extruded.

9 MR. SHIPLEY: In the context in which these polymers are being used,
10 there was no evidence that it could be done without an adhesive layer until
11 our claim to this particular invention. So in all cases there was always use of
12 an adhesive layer.

13 Let me go back to the Smith reference because I want to address your
14 question.

15 JUDGE SMITH: Okay.

16 MR. SHIPLEY: You're right, it says the word "may". Smith is still lacking
17 the teaching regarding the block copolymer in the supporting layer.
18 So even if we assume, just for the sake of argument this morning, that Smith
19 teaches direct contact between the first and second layers, it still wouldn't
20 overcome the fact that it's necessary for a combination with the secondary
21 reference.

22 So we would still argue that that combination wouldn't have been obvious,
23 or the modification of Smith based on the prior art wouldn't have been
24 obvious.

25 That goes to the fact that the main teaching of Ito is using PBN material for

1 its improved characteristics. In fact, the teaching and the use of the
2 copolymer is not taught for this improved characteristic.
3 Let me just direct your attention to the Ito reference and one particular point.
4 After the examples summarizing the examples of the Ito patent, in Column
5 15, lines 33-48, it says:
6 "It's apparent from the results in the tables above that the invention tubes
7 formed of the PBN exhibit excellent fuel permeation resistance, detergent
8 resistance, hydrolysis resistance, and inter-layer separation resistance."
9 The comparison is on the other hand it's tubes formed of PBT, PEM -- so
10 this teaching to one of ordinary skill when they read the reference isn't a
11 teaching to say use of PBN with a block copolymer is going to provide
12 improved characteristics of the prior art.
13 It's going to say it's teaching that the PBN material has improved
14 characteristics. One of ordinary skill in the art is looking at the Smith patent
15 as a starting point. Smith is already suggesting you could use the PBN
16 material for improved fuel permeation characteristics.
17 JUDGE SMITH: Excuse me. The argument that you just presented about
18 the Ito reference, did you make that before the Examiner?
19 MR. SHIPLEY: It's not in the written arguments in the record, no, sir.
20 JUDGE SMITH: Thank you.
21 MR. SHIPLEY: I just wanted to kind of highlight some things. The art
22 itself is in the record. I just wanted to highlight some of the particular
23 teachings that's there.
24 JUDGE SMITH: Okay.
25 MR. SHIPLEY: We didn't actually make that in writing, no, sir.

1 Just to summarize and I can take any other questions, the Smith reference,
2 the Ito reference, both lack the idea of this improved miscibility, peel
3 resistance using the copolymer combination.
4 To go back to summarizing what our invention is, it's the elimination of the
5 need for a separate adhesive layer. You can use just the two layers together
6 because of the combination of them being in direct contact with the PBN
7 material and the use of a copolymer in addition to the material resin.
8 I'll just defer to any questions you have at this point.
9 JUDGE SMITH: Do you have any questions?
10 JUDGE GAUDETTE: No.
11 JUDGE ROBERTSON: No.
12 JUDGE SMITH: We have no further questions. Thank you for coming in
13 today.
14 Whereupon, the proceedings at 9:30 a.m. were concluded.
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